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CONDITION SURVEY, LOCKBOURNE AIR FORCE BASE, OHIO.(U)
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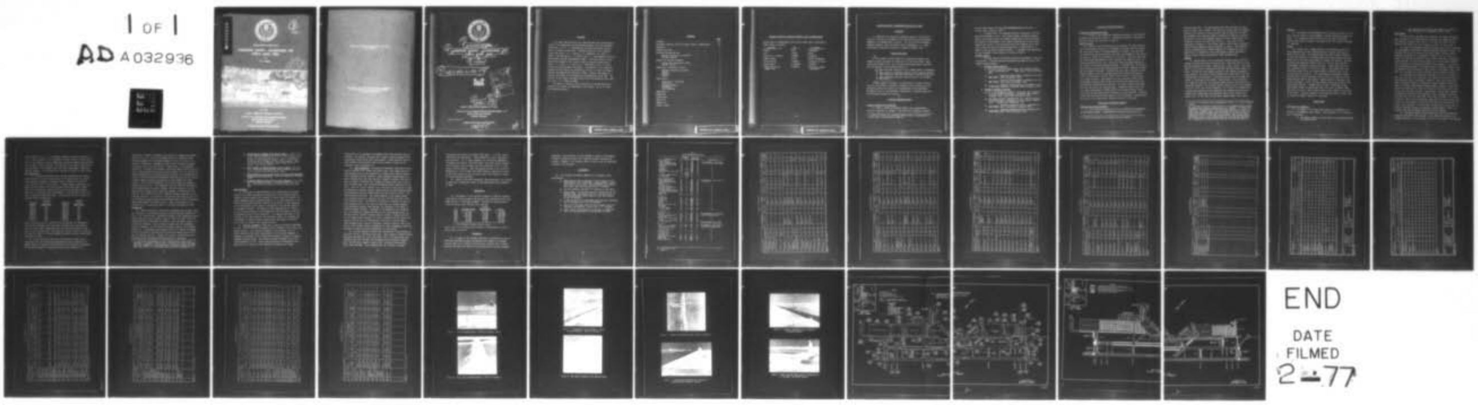

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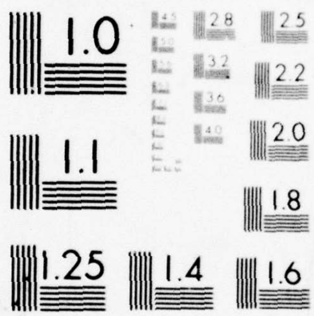

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MISCELLANEOUS PAPER S-73-54

CONDITION SURVEY, LOCKBOURNE AIR FORCE BASE, OHIO

by

R. D. Jackson

June 1973

Sponsored by Office, Chief of Engineers, U. S. Army

Conducted by U. S. Army Engineer Waterways Experiment Station
Soils and Pavements Laboratory
Vicksburg, Mississippi

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MISCELLANEOUS PAPER,

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ARMY-MRC VICKSBURG, MISS.

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Foreword

The study reported herein was conducted under the general supervision of the Engineering Design Criteria Branch, Soils and Pavements Laboratory, of the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi. Personnel involved in the condition survey were Messrs. R. D. Jackson, P. S. McCaffrey, Jr., and W. J. McKay of the WES and Mr. J. C. Hart of the U. S. Army Engineer Division, New England, Waltham, Massachusetts (NED). The major portion of this report was prepared by Mr. Jackson under the general supervision of Messrs. J. P. Sale, R. G. Ahlvin, R. L. Hutchinson, and P. J. Vedros of the Soils and Pavements Laboratory. That portion of the study pertaining to frost action was carried out by the U. S. Army Cold Regions Research and Engineering Laboratory (CRREL), Hanover, New Hampshire, with the assistance of the Foundations and Materials Branch, NED. The section of this report concerning frost action was prepared by Mr. Hart and by Mr. G. D. Gilman of CRREL.

COL Ernest D. Peixotto, CE, was Director of the WES during the conduct of the study and preparation of the report. Mr. F. R. Brown was Technical Director.

Contents

Conversion Factors, British to Metric Units of Measurement

British units of measurement used in this report can be converted to metric units as follows:

Multiply	By	To Obtain
inches	2.54	centimeters
feet	0.3048	meters
miles (U. S. statute)	1.609344	kilometers
square inches	6.4516	square centimeters
miles per hour	1.609344	kilometers per hour
pounds (mass)	0.45359237	kilograms
pounds (force) per square inch	0.6894757	newtons per square centimeter

CONDITION SURVEY, LOCKBOURNE AIR FORCE BASE, OHIO

Authority

1. Authority for conducting condition surveys at selected airfields is contained in amendment to FY 1972 RTDE Funding Authorization (MFS-MC-5, 16 February 1972), subject: "Air Force Airfield Pavement Research Program," from the Office, Chief of Engineers, U. S. Army, Directorate of Military Construction, dated 18 February 1972.

Purpose and Scope

2. The purpose of this report is to present the results of a condition survey performed at Lockbourne Air Force Base (LAFB), Ohio, during 28-30 August 1972. The following three major areas of interest were considered in this condition survey:

a. The structural condition of the primary airfield pavements;

b. The condition of pavement repairs and the types of maintenance materials that have been used at this airfield; and

c. Any detrimental effects of frost action to the pavement facilities.

3. This report is limited to a presentation of visual observations of the pavement conditions, discussion of the observations, and pertinent remarks with regard to the performance of the pavements. No physical tests of the pavements, foundations, or patching materials were performed during this survey.

Pertinent Background Data

General description of airfield

4. LAFB is located in Franklin County, Ohio, approximately 11 miles* southeast of Columbus. The airfield is generally bordered

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* A table of factors for converting British units of measurement to metric units is presented on page vii.

by State Route 665 on the north and Lockbourne Road on the west. A vicinity map is shown in plate 1.

5. In August 1972, the airfield facilities consisted of two runways (NE-SW runways 1 and 2), connecting taxiways, parking and hangar aprons, an ADC alert apron and taxiway, an ADC apron, and an ANG apron and taxiway. NE-SW runway 1 was 11,900 ft long and 200 ft wide; NE-SW runway 2 was 12,100 ft long and 200 ft wide; the taxiways were 75 and 100 ft wide; and the three parking aprons were of various sizes. A layout of the airfield is shown in plate 1. A pavement plan indicating the type pavement on each facility is shown in plate 2.

Previous reports

6. Previous reports concerning the airfield pavements at LAFB are listed below. Pertinent data were extracted from them for use in this condition survey report.

7. Condition survey reports:

a. Ohio River Division Laboratories, CE, "Condition Survey Report, Lockbourne Air [illegible] Base, Ohio," 1947, Cincinnati, Ohio.

b. __________, "Condition Survey Report, Lockbourne Air Force Base, Ohio," 1951, Cincinnati, Ohio.

c. __________, "Condition Survey Report, Lockbourne Air Force Base, Ohio," April 1954, Cincinnati, Ohio.

d. __________, "Condition Survey Report, Thin Bonded Overlay of ANG Apron Pavement," September 1968, Cincinnati, Ohio.

8. Pavement evaluation reports:

a. U. S. Army Engineer District, Cincinnati, CE, "Report on Airfield Pavement Evaluation, Lockbourne Army Air Base, Columbus, Ohio," March 1944, Cincinnati, Ohio.

b. Ohio River Division Laboratories, CE, "Airfield Pavement Evaluation Report, Lockbourne Air Force Base, Columbus, Ohio," February 1955, Mariemont, Ohio.

c. __________, "Pavement Evaluation Report, Lockbourne Air Force Base, Ohio," June 1959, Cincinnati, Ohio.

d. __________, "Pavement Evaluation Report, Lockbourne Air Force Base, Ohio," 1960, Cincinnati, Ohio.

History of Airfield Pavements

Design and construction history

9. Details of the design and construction history of the airfield pavements are presented in table 1. Pavement thicknesses, descriptions, and other details are presented in table 2.

Traffic history

10. Complete traffic records were not available for LAFB; however, based on incomplete records it is reasonable to assume that the airfield has received at least the following amounts of traffic. From the time the airfield was constructed until June 1945, approximately 6,800 cycles* per month of traffic were applied by B-17 aircraft. From June 1945 until the airfield was deactivated in 1949, slightly less than 800 cycles per month were applied, with only 5 percent of these involving aircraft in the 56,000- to 135,000-lb gross load range. From 1949-1951, the airfield was inactive as an Air Force Base, and the only traffic applied involved ANG and transient aircraft. From May 1951-June 1965, incomplete records indicate that at least the following amounts of traffic were applied: B-47's, 30,000 cycles; KC-97's, 9,600 cycles; KC-135's, 3,800 cycles; heavy cargo aircraft, 1,000 cycles; all other aircraft, 47,000 cycles. Approximately 18,000 cycles of the B-47 traffic were applied after the construction of NE-SW runway 2 in 1959. No traffic records were available for the period July 1965-June 1971. During the period July 1971-June 1972, approximately 108,000 cycles were applied; however, about 50 percent of this amount involved fighters or light aircraft. The above traffic was distributed about equally on the two runways. Approximately 90 percent of the takeoffs are from the NE end of the runways.

Conditions of Pavement Surfaces

Pavement inspection procedure

11. The following procedure was used in conducting the inspection of the rigid pavements. Representative features were selected for

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* A cycle of operation is one takeoff and one landing.

detailed inspection. The features were then inspected slab* by slab, and the defects were recorded. The locations of the individual pavement features, the inspection starting points, and the directions in which the pavements were inspected (shown by arrows) are indicated in plate 1. The results of the rigid pavement survey for those features that were inspected in detail are presented in table 3. This table shows a quantitative breakdown of the various types of defects and a condition rating for each pavement feature inspected in detail. The procedures used for determining the condition rating of a pavement are given in Appendix III of Department of the Army Technical Manual TM 5-827-3, "Rigid Airfield Pavement Evaluation," dated September 1965.

Runways

12. NE-SW runway 2 was in excellent condition based on the percentage of slabs containing no major defects. The first 1000 ft of the NE end (features R1A and R2B) contained only 3 major defects. The first 1000 ft of the SW end (features R1A and R2B) contained only 14 major defects. Feature R3C (the interior portion of the runway) contained 66 major defects. The entire runway contained 395 corner spalls that had resulted from "D" cracking**. Practically all slabs on the runway contained "D" cracking to some degree. NE-SW runway 1 was in generally poor condition; however, the portland cement concrete (PCC) ends were in very good condition. The interior portion, which is 8-in. PCC overlayed with 6 in. of AC, was in poor condition. As a result of continued deterioration and expansion of the underlying PCC pavement along the slab joints, both longitudinal and transverse blowups have occurred (see photos 1-3). At the time of this survey, NE-SW runway 1 was closed.

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* A slab is the smallest unit, containing no joints, of a given pavement feature.

** "D" cracking is defined in Bulletin 47 of the Highway Research Board, "Salvaging Old Pavement by Resurfacing," as follows: "A form of disintegration characterized by the successive formation of a series of fine cracks at rather close intervals paralleling edges, joints, and cracks and usually curving across slab corners, the initial cracks forming very close to slab edge and additional cracks progressively developing, each a little farther from the edge than the preceding one. Ordinarily the cracks are filled with a calcareous deposit."

Taxiways

13. The heavy-load PCC taxiways were in either very good or excellent condition based on the percentages of slabs containing no major defects. "D" cracking was noted in 810 of the 975 slabs in taxiway A. However, more than 50 percent of the slabs in all PCC taxiways contained "D" cracking.

Aprons

14. Feature A17B, a large portion of the NE parking apron, had been abandoned for aircraft parking because of spalls, scaling, and shoving of the slabs. The parking apron west wing (feature A16B) was in only fair condition. The hangar aprons and access taxiways (feature A26B) were in poor condition because of scaling and spalling. The parking apron and extension (feature A13B) were in only fair condition; considerable reflection cracking was noted. Feature A12B was also in fair condition because of reflection cracks. Even though there were reflection cracks in the tar rubber surface of feature A10B, it was in good condition (photo 4). The SW parking apron extension (feature A5B) was rated in good condition, since a 2-in. AC overlay was being applied at the time of this survey. Feature A28B, the ANG apron, was in good condition. A 2-in. PCC thin bonded overlay was placed on this apron during 1967-68. A random check was made to determine if any significant changes in bonding had taken place since September 1968, and none were noted. Photo 5 shows cracks at the corners of four slabs of the apron. All apron features not specifically mentioned above were in conditions ranging from fair to excellent.

Frost Action

Objectives of inspection

15. One member of the survey team inspected the pavements for evidence of detrimental frost effects. The objectives of the inspection were to determine:

a. Any adverse effects of frost heave to the pavements during the winter months.

b. Any traffic-induced failures that might be related to thaw weakening of the subgrades or base courses.

Frost heave

16. The airfield pavements were inspected for surface irregularities indicative of differential frost heaving. The inspection, which was conducted in August 1972, was at a time when the effects of nonuniform frost heave would not be apparent, except in severe cases.

17. Base Civil Engineering Office personnel were queried regarding the development of undesirable surface unevenness during the winter. The consensus of the survey team was that NE-SW runway 2 did not exhibit roughness detectable in an automobile at speeds of up to 50 mph. Although "D" cracking was observed in most slabs, along with considerable corner breaking, the runway was considered to be in excellent condition with no evidence of previous differential frost heaving. At the time of this survey NE-SW runway 1 was closed because of numerous blowups in the PCC pavement and deterioration of the joints in the original 8-in. slabs. There is no evidence that these problems resulted from frost heaving.

18. The principal heavy-load taxiways, A, B, and G (features T1A, T2A, T3A, T4A, T5A, T11A, and T12A), were smooth at the time of the inspection and in good to excellent condition. Base Civil Engineering Office personnel reported no undesirable surface roughness during the winter or spring. The NE and SW warm-up aprons (features A1B and A2B), which were constructed in 1959 for a 265,000-lb gear load, were in excellent and very good condition, respectively. Several apron pavements constructed or overlaid in the mid-1950's for a 100,000-lb gear load (features A5B, A6B, A7B, A8B, A22B, A23B, A24B, and A28B) were in good condition. Most of the older aprons, which have not been overlaid, were in fair to poor condition, while those that have been overlaid were in good to fair condition. The principal problems are the results of reflection cracking, blowups, and spalling joints; however, there is no evidence that these problems resulted from frost heaving.

19. The NE-SW runway 2 overruns and blast pads were smooth and showed no evidence of frost heaving. (The combined thickness of the pavement and base of these features is 35 in., while that of the adjacent

rigid pavement is 45 in.) The shoulder pavements (combined thickness of 17 in.) were relatively free of evidence of frost effects, with the exception of the shoulders of the parking apron extension taxiway, and generally were in fair to good condition. The shoulder of the apron extension taxiway (see photo 6) was somewhat wavy, with some longitudinal, transverse, and map cracking. This unevenness is probably the result of frost action.

Freezing indices

20. Utilizing temperature data from the Columbus Airport Weather Bureau station, a design freezing index of 684 degree-days was computed representing the average of the three coldest winters in the past 30 years (1962-63, 1969-70, and 1960-61). Average monthly temperatures for months entirely within the freezing seasons and average daily temperatures for the transition months at both ends of the freezing seasons were used in the design index determination. Seasonal indices since the 1956-57 winter are tabulated below. (These values are based entirely on average monthly temperatures.)

Freezing Season	Freezing Index degree-days	Freezing Season	Freezing Index degree-days
1956-57	192	1964-65	196
1957-58	300	1965-66	377
1958-59	452	1966-67	173
1959-60	254	1967-68	443
1960-61	477	1968-69	197
1961-62	390	1969-70	613
1962-63	808	1970-71	272
1963-64	506	1971-72	243

Indices determined solely on the basis of average monthly temperatures are generally somewhat lower than those determined with consideration given to average daily temperatures for the transition months at both ends of the freezing season. The tabulated indices, however, do indicate the relative severity of winters during the period of heavy-load aircraft operations at LAFB.

21. Since the design index has been exceeded once and closely approached twice since the heavy-load pavements were constructed, the general absence of evidence of differential frost heaving is significant. The combined thickness of pavement and base course required for

prevention of subgrade freezing in the design year ranges from approximately 45 to 52 in., and the thickness required in accordance with limited subgrade frost penetration design is about 35 to 42 in. The specific penetration is dependent on the moisture content and density of the base course and subbase and, to some extent, on the pavement thickness. The heavy-load pavements constructed during 1958-59 (table 1) have a combined pavement and base course thickness of 45 in. and meet the limited subgrade frost penetration design criteria. The combined thicknesses of the older heavy-load pavements range from 20 to 36 in. and substantial subgrade freezing probably has occurred during the colder winters. (The combined thicknesses of the older light-load pavements range from 12 to 23 in.) The pavements, with the possible exception of the SW parking apron extension (feature A5B) and a portion of the NE parking apron (feature A17B), showed no evidence of differential frost heaving. For features A5B (25-in. combined thickness) and A17B (12-in. combined thickness), any effects of differential frost heaving could not be positively determined since these pavements have received considerable damage from blowups and spalled joints. Thus, frost heaving is not indicated to be a significant factor in pavement performance at LAFB.

Groundwater

22. Surface drainage is controlled by regularly spaced inlets which are connected to storm sewers leading to natural drainage channels outside of the airfield area. Subsurface drainage of the subgrade materials (sandy clay (CL*) with occasional strata of clay (CH)) and of the base course materials for portions of taxiways A and B and NE-SW runway 1 is provided by subdrains. Base personnel reported that the groundwater table is generally 3 to 5 ft below the pavement surface, with seasonal variations. An abnormally large amount of rain fell during the summer of 1972, and there is evidence that in places groundwater may be at or near the pavement surface. Evidence of a high or perched water table was found at the following locations during this inspection:

* CL and CH are designations for soil classifications under the U. S. Department of Defense, "Unified Soil Classification System for Roads, Airfields, Embankments, and Foundations," Military Standard MIL-STD-619B, June 1968, U. S. Government Printing Office, Washington, D. C.

a. Intersection of taxiway C and NE-SW runway 1. About 100 ft of the runway pavement (6-in. AC over 8-in. PCC on a 6-in. gravel base) had heaved about 4 or 5 in. in a pattern following the underlying PCC pavement joints. This blowup resulted from the expansion of the rigid pavement. Water was flowing onto the pavement surface from one of the joints. (See photos 7 and 8.)

b. NE-SW runway 1, between taxiway C and sta 70+79. The junction between the rigid pavement and the flexible shoulder on the northeast side showed water stains.

c. NE-SW runway 1 (3-in. AC over 11-in. PCC on a clay subgrade), between sta 70+79 and 95+00. There was evidence of bleeding joints.

d. NE parking apron (12-in. PCC on a clay subgrade). This apron had been abandoned because of extensive blowups and spalling. There was also evidence of bleeding joints in this area.

Thaw weakening

23. The extent of thaw weakening of the subgrade and base courses could not be readily determined by inspection of the pavement surfaces. Pavement failures usually are repaired soon after they occur and are not easily examined during a condition survey. It is often impossible to establish by inspection whether a failure is the result of thaw weakening or of deficiencies in the quality or thickness of the various layers of the pavement structure. The degree of thaw weakening and its effects, if any, on the condition of the pavements at LAFB consequently could not be appraised solely by this inspection. Some limited perception of the severity of any thaw weakening can be gained, however, by comparing the performance of certain pavement features with what might be inspected in the light of current frost design criteria.

24. Flexible pavements. There are no heavy-load flexible pavements at LAFB. The only flexible pavements are the shoulders, blast areas, and runway overruns. The combined thickness of the shoulders is 15 in., which, assuming a CBR value representative of the typical subgrade, is adequate in accordance with current frost-condition criteria for reduced subgrade strength design. The overrun and blast pavements have a combined thickness of 35 in., which, again assuming a representative subgrade CBR, is in excess of that required by normal-period design

criteria but is not adequate in accordance with frost-condition design criteria. The combined thickness will, however, prevent subgrade frost penetration except during very severe winters. These pavements were in good condition and relatively free of frost effects, except for the shoulders noted in paragraph 19.

25. Rigid pavements. The heavy-load pavements constructed during 1958-59 conform to the current (265,000-lb gear load) normal-period design criteria and are also adequate in accordance with limited subgrade frost penetration design criteria. These pavements include NE-SW runway 2 (features R1A, R2B, R3C, and R4D), taxiway B (features T4A and 5A), part of taxiway C (feature T7C), taxiway E (feature T9C), part of taxiway G (feature T12A), and the NE and SW warm-up aprons (features A1B and A2B). Since the limited subgrade frost penetration design method assumes no reduction in pavement bearing capacity during the frost-melting period, the evaluations for these features have not been reduced in table 4 for frost-condition operation. Two other pavements in the primary heavy-load system are taxiway A (features T1A, T2A, and T3A) and part of taxiway G (feature T11A). The combined thicknesses of pavement and base for these features (26 to 36 in.) are not sufficient for limited subgrade frost penetration design, and they must be considered on the basis of reduced subgrade strength. According to the equivalent slab thickness h_E , the modulus of subgrade reaction for the frost-melting period k_f , and the concrete flexural strength values in table 4, features T1A and T3A are approximately adequate for reduced subgrade strength design, and features T2A and T11A are significantly deficient in slab thickness. These pavements were in good to excellent condition; however, due to the lack of B-52 aircraft traffic (paragraph 10), their performance under the loadings for which they were designed has not been tested.

26. Several pavement features were constructed or reconstructed in 1954 and 1955 for a 100,000-lb gear load. These include the NE-SW runway 1 extension (features R13C, R14B, and R15A), part of the SW parking apron (features A6B, A7B, and A8B), the SW parking apron extension (feature A5B), the ANG apron taxiway (feature T13A), and apron features A22B, A23B, A24B, and A28B. These pavements have 20- to 28-in. combined

thicknesses and, except for feature A28B, have 17- to 20-in. slab or equivalent slab thicknesses. Feature A28B has a 14-in. equivalent slab thickness. All of these pavements are essentially adequate in accordance with current (100,000-lb gear load) frost design criteria, except features R15A and A28B, which are indicated to be 4 in. deficient in slab thickness. While the traffic pattern is not stated in paragraph 10, it is probable that these features, which were in good to very good condition, have not been loaded significantly in excess of their evaluated capacities.

27. Based on the above discussion, thaw weakening is not believed to have been a significant factor in the performance of the pavements at LAFB.

Maintenance

28. Maintenance of the airfield pavements at LAFB has generally consisted of repairing spalls and pop-outs and overlaying the PCC pavements with AC or tar rubber pavement. Listed below are maintenance costs for fiscal years 1966-69, 1971, and 1972.

FY	Contract Costs	In-House Expenditures	Total
1966	$ 214,663	$26,181	$ 240,884
1967	802,774	56,024	858,798*
1968	1,142,480	66,199	1,208,679*
1969	300,195	62,928	363,123
1971	95,670	60,609	156,279
1972	139,862	66,751	200,613

* Cost includes overlay of apron areas.

At the time of this survey, an AC overlay was being placed on the SW parking apron extension.

Evaluation

29. A summary of the pavement evaluation is presented in table 4. Previously published pavement evaluations were updated to eliminate aircraft that are no longer in the Air Force inventory and to include aircraft that have been added to the inventory since the last pavement

evaluation. The evaluation for each feature is based on the pavement thickness, flexural strength (PCC), base and subbase thickness and strength, strength of the subgrade (CBR or k value), and the structural condition of the pavement.

Conclusions

30. The following statements summarize the findings of this investigation:

a. NE-SW runway 2 was in excellent condition based on the percentage of slabs containing no major defects; however, minor defects were noted. The predominate minor defects were spalls that had developed from "D" cracking.

b. All PCC pavements contained "D" cracking to some degree.

c. NE-SW runway 1 was in poor condition, except for the PCC pavement ends. The area with 6 in. of AC over 8 in. of PCC contained many blowups caused by the deterioration of the PCC pavement.

d. A large portion of the NE parking apron had been abandoned due to deterioration of the PCC pavement.

e. Most of the PCC apron areas had been overlaid with AC to eliminate the patching of spalls due to "D" cracking.

f. Frost action is not believed to have been a significant factor in the performance of the pavements at LAFB.

Table 1

Airfield Design and Construction History

Pavement Facility	Pavement Type	Pavement Thickness, in.	Construction Year(s)	Construction Agency	Design Criteria
Original construction					
Original parking apron	PCC	8	1942	CE	Tricycle arrangement: 40,000-lb, single-wheel load (World War II medium bomber)
Original parking apron extension	PCC	8	1942	CE	
Original parking apron east wing	PCC	8	1942	CE	
Original parking apron west wing	PCC	8	1942	CE	
NE-SW runway	PCC	8	1942	CE	
N-S runway	PCC	8	1942	CE	
Taxiways C and E	PCC	8	1942	CE	
NW-SE runway	PCC	10-7-10	1942	CE	
Taxiways H and J	PCC	8	1942	CE	
NW-SE, NE-SW, and N-S runway shoulders	AC	4	1942	CE	
E-W runway	PCC	10-1/2-7-10-1/2	1943	CE	
NE-SW runway (originally taxiway K), sta 2+00 to 14+79	PCC	10-1/2-7-10-1/2	1943	CE	
E-W runway shoulders	PCC	9-6-9	1943	CE	
Original pavement strengthening					
Original parking apron	AC*	7	1951	CE	Tricycle arrangement: 60,000-lb gear load on dual wheels
Original parking apron extension	AC*	7	1951	CE	
Original parking apron east wing	AC*	7	1951	CE	
Taxiway E	AC*	7	1951	CE	
N half of N-S runway	AC*	7	1951	CE	
NE-SW runway	AC*	6	1951	CE	
NW portion of NW-SE runway	AC*	±7	1951	CE	
NE-SW runway, sta 10+14 to 14+79	AC*	6	1951	CE	
NE portion of taxiway K	AC*	6	1951	CE	
NE-SW runway, sta 2+00 to 10+14	PCC*	6	1951	CE	
(originally SW portion of taxiway K)	PCC	6	1951	CE	
West end of E-W runway (now part of NE-SW runway)	PCC	6	1951	CE	
Taxiways H and J	AC*	7	1951	CE	
Taxiway C	AC*	1 to 7	1951	CE	
New construction					
NE parking apron	PCC	12	1952	CE	
SW parking apron	PCC	12	1952-53	CE	
Taxiway F	PCC	12	1952	CE	
Operational apron	PCC	12	1952	CE	
Taxiway D	PCC	12	1952	CE	
Taxiway B	PCC	12	1952	CE	
NE-SW runway, sta 95+00 to 105+00	PCC	12	1952	CE	
NE-SW runway**	PCC	12	1952	CE	
NE-SW runway					
Sta 70+79 to 95+00	PCC	11	1952	CE	
Sta 10+14 to 14+79**	PCC	11	1952	CE	
Sta 14+79 to 69+00**	PCC	11	1952	CE	
New construction					
ANG apron and taxiway	PCC	12	1954	CE	Tricycle arrangement: 100,000-lb gear load on dual wheels spaced 37.5 in. c-c with 267-sq-in. contact area per tire
ANG taxiway	PCC	8*	1955	CE	
NE-SW runway, sta 109+00 to 119+00	PCC	17	1955	CE	
SW parking apron extension	PCC	17	1955	CE	
NE parking apron	PCC**	17	1955	CE	
Taxiway adjacent to NE parking apron	PCC	17	1955	CE	
ADC apron	PCC	17	1955	CE	
ADC hangar apron and access taxiway	PCC	14	1955	CE	
Alert apron and taxiway	PCC	11	1955	CE	Tricycle arrangement: 25,000-lb, single-wheel load with 200-psi tire pressure
New construction					
Taxiway B	PCC	27	1958	CE	Bicycle arrangement: 265,000-lb gear load on twin-twin wheels spaced 37-62-37 in. and 267-sq-in. contact area per tire.
Taxiway A (except portion adjacent to NE parking apron widening)	PCC	24-27-24	1958	CE	
NE-SW runway No. 2 Sta -1+75 to 4+75 and 5+00 Sta 114+25 to 119+25	PCC	21	1959	CE	
NE-SW runway No. 2 Sta 5+00 to 10+00 Sta 109+25 to 114+25	PCC	20	1959	CE	
NE-SW runway No. 2 Sta 10+00 to 109+25	PCC	16	1959	CE	
NE-SW runway No. 2, outside edges	PCC	14-16	1959	CE	
Taxiways B and G	PCC	21	1959	CE	
Taxiways C and E	PCC	16	1959	CE	
NE and SW warm-up aprons	PCC	20	1959	CE	

Note: CE denotes Corps of Engineers.
* Overlay of PCC
** Widening

Table 2

SUMMARY OF PHYSICAL PROPERTY DATA

Facility: Lockbourne AFB, Ohio				Overlay Pavement			Pavement			Base			Subgrade		General Condition of Area Considered
Facility Number and Identification		Length ft	Width ft	Thick. in.	Description	Flex. Str psi	Thick. in.	Description	Flex. Str psi	Thick. in.	Classification	CBR or K	Classification	CBR or K	
R1A	NE-SW runway 2 NE end, sta 114+25 to 119+25 SW end, sta -1+75 to 5+00	500 675	150 150				21	Portland cement concrete	660	24 min	Sandy gravel (GW)	275	Sandy clay (CL)		Excellent
R2B	NE-SW runway 2 NE end, sta 109+25 to 114+25 SW end, sta 5+00 to 10+00	500 500	100 100				20	Portland cement concrete	660	25 min	Sandy gravel (GW)	250	Sandy clay (CL)		Excellent
R3C	NE-SW runway 2 interior	9,925	100				16	Portland cement concrete	660	29 min	Sandy gravel (GW)	300	Sandy clay (CL)		Excellent
R4D	NE-SW runway 2 edges	12,100 10,950	50 50				14 to 16	Portland cement concrete	660	29 to 31	Sandy gravel (GW)	300	Sandy clay (CL)		Excellent
R5A	NE-SW runway 1 Sta 2+00 to 5+00, center	300	100	6	Portland cement concrete $h_E = 9.7$*	715	7	Portland cement concrete 10-1/2-7-10-1/2	700	7	Silty sandy gravel (GM) F1	100 k_r= 35	Sandy clay (CL)		Good
R6B	NE-SW runway 1 Sta 5+00 to 10+14, center 100 ft	514	100	6	Portland cement concrete $h_E = 9.7$	715	7	Portland cement concrete 10-1/2-7-10-1/2	700	7	Silty sandy gravel (GM) F1	100 k_r= 35	Sandy clay (CL)		Good
R7D	NE-SW runway 1 Sta 2+50 to 10+14 Sta 10+14 to 14+79 (Outside 100 ft, each side)	764 465	100 100				12 11	Portland cement concrete	700				Sandy clay (CL)	75 k_r= 25	Good
R8C	NE-SW runway 1 interior Sta 10+14 to 14+79	465	100	6	Asphaltic concrete $h_E = 10.44$		7	Portland cement concrete 10-1/2-7-10-1/2	700	6	Silty sandy gravel (GM) F1	100 k_r= 35	Sandy clay (CL)		Poor
R9D	NE-SW runway 1 interior Sta 14+79 to 69+00 (25-ft edges)	5,421	50	3	Asphaltic concrete $h_E = 13.26$		11	Portland cement concrete	700			--	Sandy clay (CL)	75 k_r= 25	Poor
R10C	NE-SW runway 1 interior Sta 14+79 to 70+79 (Center 150 ft)	5,600	150	6	Asphaltic concrete $h_E = 11.56$		8	Portland cement concrete	700	6	Silty sandy gravel (GM) F1	100 k_r= 35	Sandy clay (CL)		Poor
R11C	NE-SW runway 1 Sta 70+79 to 95+00	2,421	200	3	Asphaltic concrete $h_E = 13.26$		11	Portland cement concrete	700				Sandy clay (CL)	75 k_r= 25	Poor
R12C	NE-SW runway 1 interior Sta 95+00 to 105+00	1,000	200				12	Portland cement concrete	715				Sandy clay (CL)	75 k_r= 25	Fair
R13C	NE-SW runway 1 interior Sta 105+00 to 109+00	400	200				17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_r= 35	Sandy clay (CL)		Very good
R14B	NE-SW runway 1 Sta 109+00 to 114+00	500	200				17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_r= 35	Sandy clay (CL)		Very good

* Equivalent thickness.

WES FORM MAR 1000 1000

(1 of 5 sheets)

Table 2 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

Facility: Lockbourne AFB, Ohio				Overlay Pavement			Pavement			Base			Subgrade		General Condition of Area Considered
Facility Number and Identification		Length ft	Width ft	Thick. in.	Description	Flex. Str psi	Thick. in.	Description	Flex. Str psi	Thick. in.	Classification	CBR or K	Classification	CBR or K	
R15A	NE-SW runway 1 Sta 114+00 to 119+00	500	200				17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f = 35	Sandy clay (CL)		Very good
T1A T4A	Taxiway A Taxiway B (new construction)	7,865 900	75 75				24-27-24	Portland cement concrete	700	6	Gravel (GW)	100 k_f = 35	Sandy clay (CL)		Very good
T2A	Taxiway A	3,400	75	3	Asphaltic concrete h_E = 19.3		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f = 35	Sandy clay (CL)		Good
T3A	Taxiway A	Varies	Varies	3	Asphaltic concrete h_E = 30		24-27-24	Portland cement concrete	700	6	Gravel (GW)	100 k_f = 35	Sandy clay (CL)		Good
T4A	Taxiway B (Pavement that was not reconstructed)	600	25				12	Portland cement concrete	640				Sandy clay (CL)	100 k_f = 25	Excellent
T5A	Taxiway B connecting runways 1 and 2	800	75				21	Portland cement concrete	660	24 min	Sandy gravel (GW)	275	Sandy clay (CL)		Excellent
T6C	Taxiway C	950	150	7 to 1	Asphaltic concrete 7 in. used for evaluation h_E = 10.43		7	Portland cement concrete 10-1/2-7-10-1/2	700	6	Silty sandy gravel (GM) F1	100 k_f = 35	Sandy clay (CL)		Good
T7C	Taxiway C connecting runways 1 and 2	800	75				16	Portland cement concrete	660	29 min	Sandy gravel (GW)	300	Sandy clay (CL)		Excellent
T14C	Taxiway D	100	100	7	Asphaltic concrete h_E = 1200		8	Portland cement concrete	700	5 and 6	Silty sandy gravel (GM) F1	100 k_f = 35	Sandy clay (CL)		Good
T8C	Taxiway D	300	100	2 to 0	Bituminous concrete h_E = 13.91		12	Portland cement concrete	640				Sandy clay (CL)	75 k_f = 25	Good
T9C	Taxiway E	800	75				16	Portland cement concrete	660	29 min	Sandy gravel (GW)	300	Sandy clay (CL)		Excellent
T10C	Taxiway F	920	100	5 to 6	Bituminous concrete h_E = 15.22		12	Portland cement concrete	715				Sandy clay (CL)	75 k_f = 25	Good
T11A	Taxiway G	1,000±	75	3	Asphaltic concrete h_E = 19.3		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f = 35	Sandy clay (CL)		Good
T12A	Taxiway G connecting runways 1 and 2	800	75				21	Portland cement concrete	660	24 min	Sandy gravel (GW)	275	Sandy clay (CL)		Excellent

WES FORM MAR 1959 1000

Table 2 (Continued)
SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Lockbourne AFB, Ohio				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
T13A	ANG apron taxiway	1,800	75	2 6	Asphaltic concrete h_E = 16.49 Portland cement concrete	680	12	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A1B A2B	NE warm-up apron SW warm-up apron	Varies Varies	Varies Varies				20	Portland cement concrete	660	25 min	Sandy gravel (GW)	280	Sandy clay (CL)		Excellent Very good
A3B	North warm-up apron	Varies	Varies	3	Asphaltic concrete h_E = 14.35		12	Portland cement concrete	715				Sandy clay (CL)	75 k_f= 25	Good
A4B	South warm-up apron	Varies	Varies				17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Fair
A5B	SW parking apron extension	1,800	1000	2	Asphaltic concrete h_E = 19.78		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A6B	SW parking apron	200	75	2	Asphaltic concrete h_E = 19.78		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A7B	SW parking apron	200	825	3	Tar and tar rubber h_E = 20.22		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A8B	SW parking apron	200	100	3	Asphaltic concrete h_E = 20.22		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A9B	SW parking apron	3,480	75	2	Asphaltic concrete h_E = 13.91		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A10B	SW parking apron	2,765	825	3	Tar and tar rubber h_E = 14.35		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A11B	SW parking apron	2,765	100	3	Asphaltic concrete h_E = 14.35		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A12B	SW parking apron	Varies	Varies	2	Tar and tar rubber h_E = 13.91		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Fair
A13B A14B	Parking apron and apron extension Parking apron east wing	Varies Varies Varies	Varies Varies Varies	7	Asphaltic concrete h_E = 12.00		8	Portland cement concrete	700	5 and 6	Silty sandy gravel (GM) F1	100 k_f= 35	Sandy clay (CL)		Fair

Table 2 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Lockbourne AFB, Ohio				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
A15B	Operational apron	Varies	Varies				12	Portland cement concrete	680	--	None	--	Sandy clay (CL)	75 k_f= 25	Fair
A16B	Apron west wing	Varies	Varies	7	Portland cement concrete variable 7 in.-14 in. h_E = 11.12	705	8	Portland cement concrete	700	6	Silty sandy gravel (GM) F1	100 k_f= 35	Sandy clay (CL)		Fair to good
A17B	NE parking apron (abandoned)	Varies	Varies				12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Poor
A18B	NE parking apron	1,265	75	2	Asphaltic concrete h_E = 13.91		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A19B	NE parking apron	1,265	800	3	Tar and tar rubber h_E = 14.35		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A20B	NE parking apron	Varies	Varies	3	Asphaltic concrete h_E = 14.35		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A21B	NE parking apron	Varies	Varies	2	Tar and tar rubber h_E = 13.91		12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good
A22B	NE parking apron widening	2,300	75				17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A23B	ADC apron	980	230	2-3/4	Tar and tar rubber h_E = 20.11		17	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A24B	ADC hangar apron and access taxiway	160 150	160 75	2-3/4	Tar and tar rubber h_E = 16.78		14	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A25B	Alert apron and taxiway	Varies	Varies				11	Portland cement concrete	680	6	Silty sandy gravel (GM) F1	100 k_f= 35	Sandy clay (CL)		Good
A26B A27B	Hangar aprons and access taxiways Nose dock access apron	350 350 600 1,050	350 350 350 100				12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Poor
A28B	AMC apron	1,050	340	2	Portland cement concrete h_E = 11.0		12	Portland cement concrete	680	6	Sand and gravel (GW)	100 k_f= 35	Sandy clay (CL)		Good
A29C	Washrack	270	150				12	Portland cement concrete	680				Sandy clay (CL)	75 k_f= 25	Good

WES FORM 1000 MAR 1968

Table 2 (Continued)
SUMMARY OF PHYSICAL PROPERTY DATA

FACILITY Lockbourne AFB, Ohio				OVERLAY PAVEMENT			PAVEMENT			BASE			SUBGRADE		GENERAL CONDITION OF AREA CONSIDERED
FACILITY NUMBER AND IDENTIFICATION		LENGTH FT	WIDTH FT	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	DESCRIPTION	FLEX. STR PSI	THICK. IN.	CLASSIFICATION	CBR OR K	CLASSIFICATION	CBR OR K	
R16X	NE-SW runway 2 blast pads	150	200				2	Asphaltic concrete							
R17X	NE-SW runway 2 overruns	850	200					Double bituminous surface treatment							
R18X	NE-SW runway 1 blast pads	150 265	200 250				2	Asphaltic concrete							

Note: All subgrades are F3 frost group.
Base courses are nonfrost susceptible except as indicated.

WES FORM MAR 1968 1000

Table 3

DATE: August 1972

SUMMARY OF DATA – RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Lockbourne AFB, Ohio

FEATURE NO.	FEATURE DESIGNATION	SLAB SIZE FT	APPROX NO. OF SLABS	PAVE. THICK. IN.	NO. OF SLABS CONTAINING INDICATED DEFECTS: I	—	\	Δ	✱	K	~	S	J	↓J	J	◆	M	P	O	C	D	% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION
R1A	NE-SW runway 2 NE end 1st 500 ft	25 by 25	160	21											25							85.6	100	Excel-lent
R2B	NE-SW runway 2 NE end 2nd 500 ft	25 by 25	160	20	3								6	1	8							89.4	98.1	Excel-lent
R3C	NE-SW runway 2 interior	25 by 25	3160	16	61		4	1			11	1	27	13	330							85.9	97.9	Excel-lent
R2B	NE-SW runway 2 SW end sta 5+00 to 10+00	25 by 25	160	20	12						5			1	11							83.8	92.5	Excel-lent
R1A	NE-SW runway 2 SW end 1st 675 ft	25 by 25	216	21	1			1			3			1	21					1		87.5	99.1	Excel-lent
R13C R14B R15A	NE-SW runway 1 NE end, sta 105+00 to 119+00	25 by 25	400	17	21						1		16	24	16							82.3	94.7	Very good
T1A	Taxiway A	25 by 25	975	24-27-24	3	5	9	3			17		17	27	50						810	16.1	98.6	Very good
T4A T5A	Taxiway B	25 by 25	309	12; 24-27-24 21	7	1						5	5	2	26		1					85.7	97.4	Excel-lent
T7C	Taxiway C connecting run-ways 1 & 2	25 by 25	150	16											3							98.0	100	Excel-lent
T9C	Taxiway E	25 by 25	147	16									1		6					1		94.6	100	Excel-lent

REMARKS: All PCC pavements contained "D" cracking to some degree.

LEGEND:

- I LONGITUDINAL CRACK
- — TRANSVERSE CRACK
- \ DIAGONAL CRACK
- Δ CORNER BREAK
- ✱ SHATTERED SLAB
- K KEYED JOINT FAILURE
- ~ SHRINKAGE CRACK
- S SCALING
- J SPALL ON TRANSVERSE JOINT
- ↓J SPALL ON LONGITUDINAL JOINT
- J CORNER SPALL
- ◆ SETTLEMENT
- M MAP CRACKING
- P PUMPING JOINT
- O POP-OUT
- C UNCONTROLLED CONTRACTION CRACK
- D "D" CRACKING

WES FORM NO. 2004
JUN 1972

(1 of 2 sheets)

Table 3 (Continued)

DATE: August 1972

SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Lockbourne AFB, Ohio

FEATURE NO.	FEATURE DESIGNATION	SLAB SIZE FT	APPROX NO. OF SLABS	PAVE. THICK. IN.	I	—	\	Δ	✱	K	〰	S	J	↲	J	⊕	M	P	O	C	D	% OF SLABS NO DEFECTS	% OF SLABS NO MAJOR DEFECTS	CONDITION
T12A	Taxiway G connecting runways 1 & 2	25 by 25	136	21										1	15							89.8	100	Excellent
A1B	NE warm-up apron	25 by 25	153	20		3	1						1	2	25							80.7	97.4	Excellent
A2B	SW warm-up apron	25 by 25	207	20			4				3	1	3	14	26							79.8	98.1	ery good
A4B	South warm-up apron W	25 by 25	224	17	23	3		1			17		11	9	21							68.3	88.9	Fair

NO. OF SLABS CONTAINING INDICATED DEFECTS

REMARKS:

LEGEND:

- I LONGITUDINAL CRACK
- — TRANSVERSE CRACK
- \ DIAGONAL CRACK
- Δ CORNER BREAK
- ✱ SHATTERED SLAB
- K KEYED JOINT FAILURE
- 〰 SHRINKAGE CRACK
- S SCALING
- J SPALL ON TRANSVERSE JOINT
- ↲ SPALL ON LONGITUDINAL JOINT
- J CORNER SPALL
- ⊕ SETTLEMENT
- M MAP CRACKING
- P PUMPING JOINT
- O POP-OUT
- C UNCONTROLLED CONTRACTION CRACK
- D "D" CRACKING

WES FORM NO. 2004
JUN 1972

(2 of 2 sheets)

Table 4

SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD: Lockbourne AFB, Ohio

DATE OF EVALUATION MONTH Aug YR: 1972

FEATURE NO.	FEATURE DESIGNATION	PAVEMENT OPERATIONAL USE	Tricycle: SINGLE 100-PSI TIRE PRESSURE (1)	Tricycle: SINGLE 100-SQ-IN. CONTACT AREA (2)	Tricycle: SINGLE 241-SQ-IN. CONTACT AREA (3)	Tricycle: TW 28-IN. C-C 226-SQ-IN. CONTACT AREA EACH TIRE (4)	Tricycle: SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA (5)	Tricycle: TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE (6)	Tricycle: TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE (7)	Tricycle: TWIN TANDEM 33 IN. × 48 IN. 208-SQ-IN. CONTACT AREA EACH TIRE (8)	Tricycle: C-5A GEAR CONFIGURATION (9)	Bicycle: TWIN TWIN SPCG 37-62-37 267-SQ-IN. CONTACT AREA EACH TIRE (10)	REMARKS
R1A T5A T12A	NE-SW runway 2 ends Taxiway B connecting runways 1 and 2 Taxiway G connecting runways 1 and 2	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	500,000	
R2B A1B A2B	NE-SW runway 2 ends NE warm-up apron SW warm-up apron	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	500,000	
R3C	NE-SW runway 2 interior	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	510,000	
R5A	NE-SW runway 1 1st 300 ft SW end	Capacity Frost capacity	65,000 55,000	55,000 45,000	80,000 75,000	100,000 80,000	130,000 120,000	95,000 90,000	125,000 110,000	180,000 155,000	520,000 450,000	(a) (a)	
R6B	NE-SW runway 1 sta 5+00 to 10+14 SW end	Capacity Frost capacity	65,000 60,000	55,000 50,000	95,000 80,000	100,000 85,000	150,000 125,000	110,000 95,000	145,000 120,000	210,000 165,000	600,000 480,000	(a) (a)	
R8C	NE-SW runway 1 interior (center 100 ft) sta 10+14 to 14+79	Capacity Frost capacity	95,000 85,000	80,000 70,000	135,000 110,000	140,000 115,000	200,000+ 175,000	160,000 130,000	210,000 165,000	295,000 225,000	800,000+ 670,000	(a) (a)	
R10C	NE-SW runway 1 sta 14+79 to 70+79	Capacity Frost capacity	110,000 100,000	85,000+ 85,000	155,000 130,000	160,000 140,000	200,000+ 200,000+	185,000 155,000	235,000 195,000	330,000 260,000	800,000+ 770,000	250,000 (a)	
R11C	NE-SW runway 1 sta 70+79 to 95+00	Capacity Frost capacity	135,000 120,000	85,000+ 85,000+	155,000+ 150,000	190,000 160,000	200,000+ 200,000+	215,000 175,000	265,000 220,000	360,000 280,000	800,000+ 800,000+	280,000 (a)	
R12C	NE-SW runway 1 sta 95+00 to 109+00	Capacity Frost capacity	120,000 105,000	85,000+ 85,000+	155,000+ 135,000	165,000 145,000	200,000+ 200,000+	190,000 160,000	235,000 195,000	320,000 255,000	800,000+ 750,000	250,000 (a)	

Note: + sign denotes allowable gross loading greater than maximum gross weight of any existing aircraft having indicated gear configuration.
(a) denotes allowable gross loading less than minimum gross weight of any existing aircraft having indicated gear configuration.

WES FORM NO. 999 JUNE 1972 EDITION OF AUG 1960 IS OBSOLETE.

(1 of 4 sheets)

Table 4 (Continued)

SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD: Lockbourne AFB, Ohio

DATE OF EVALUATION MONTH: Aug YR: 1972

FEATURE		PAVEMENT OPERATIONAL USE	LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS										REMARKS
			TRICYCLE ARRANGEMENT									BICYCLE	
NO.	DESIGNATION		SINGLE 100-PSI TIRE PRESSURE	SINGLE 100-SQ-IN. CONTACT AREA	SINGLE 241-SQ-IN. CONTACT AREA	TW 28-IN. C-C 226-SQ-IN. CONTACT AREA EACH TIRE	SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA	TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE	TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE	TWIN TANDEM 33 IN. × 48 IN. 208-SQ-IN. CONTACT AREA EACH TIRE	C-5A GEAR CONFIGURATION	TWIN TWIN SPCG 37-62-37 267-SQ-IN. CONTACT AREA EACH TIRE	
			1	2	3	4	5	6	7	8	9	10	
R13C	NE-SW runway 1 sta 105+00 to 109+00	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	310,000	330,000+	380,000+	800,000+	400,000	
		Frost capacity	140,000	85,000+	155,000+	220,000+	200,000+	270,000	330,000	380,000+	800,000+	350,000	
R14B A4B A22B	NE-SW runway 1 2nd 500 ft sta 109+00 to 114+00 S warm-up apron NE paving apron widening	Capacity	155,000	85,000+	155,000+	200,000	200,000+	235,000	285,000	370,000	800,000+	300,000	
		Frost capacity	140,000	85,000+	155,000+	185,000	200,000+	205,000	250,000	320,000	800,000+	260,000	
R15A	NE-SW runway 1 sta 114+00 to 119+00	Capacity	155,000	85,000+	155,000+	200,000	200,000+	195,000	245,000	320,000	800,000+	280,000	
		Frost capacity	135,000	85,000+	155,000+	180,000	200,000+	195,000	240,000	300,000	800,000+	250,000	
T1A T4A	Taxiway A Taxiway B	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	560,000	
T2A T11A	Taxiway A Taxiway G	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	240,000	300,000	380,000+	800,000+	350,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	200,000	250,000	310,000	800,000+	280,000	
T3A	Taxiway A	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	600,000+	
T6C	Taxiway C	Capacity	95,000	75,000	135,000	140,000	200,000+	155,000	205,000	290,000	800,000+	(a)	
		Frost capacity	85,000	70,000	115,000	120,000	180,000	135,000	170,000	230,000	680,000	(a)	
T7C T9C	Taxiway C connecting runways 1 and 2 Taxiway E	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	530,000	

Table 4 (Continued)

SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD: Lockbourne AFB, Ohio			LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS										
DATE OF EVALUATION MONTH: Aug YR: 1972			TRICYCLE ARRANGEMENT									BICYCLE	
FEATURE		PAVEMENT OPERATIONAL USE	SINGLE 100-PSI TIRE PRESSURE	SINGLE 100-SQ-IN. CONTACT AREA	SINGLE 241-SQ-IN. CONTACT AREA	TW 28-IN. C-C 226-SQ-IN. CONTACT AREA EACH TIRE	SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA	TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE	TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE	TWIN TANDEM 33 IN. × 48 IN. 208-SQ-IN. CONTACT AREA EACH TIRE	C-5A GEAR CONFIGURATION	TWIN TWIN SPCG 37-62-37 267-SQ-IN. CONTACT AREA EACH TIRE	REMARKS
NO.	DESIGNATION		1	2	3	4	5	6	7	8	9	10	
T14C	Taxiway D	Capacity	120,000	85,000+	155,000+	170,000	200,000+	195,000	245,000	340,000	800,000+	260,000	
		Frost capacity	105,000	85,000	130,000	140,000	200,000+	160,000	195,000	260,000	760,000	(a)	
T8C	Taxiway D	Capacity	135,000	85,000+	155,000+	185,000	200,000+	210,000	265,000	360,000	800,000+	280,000	
		Frost capacity	120,000	85,000+	150,000	160,000	200,000+	175,000	220,000	280,000	800,000+	(a)	
T10C	Taxiway F	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	265,000	330,000	380,000+	800,000+	350,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	245,000	300,000	380,000	800,000+	310,000	
T13A	ANG apron taxiway	Capacity	145,000	85,000+	155,000	200,000	200,000+	190,000	240,000	310,000	800,000+	290,000	
		Frost capacity	120,000	85,000+	155,000	175,000	200,000+	190,000	230,000	290,000	800,000+	240,000	
A1B A2B	NE and SW warm-up aprons	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	500,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	330,000+	330,000+	380,000+	800,000+	500,000	
A3B	North warm-up apron	Capacity	120,000	85,000+	150,000	165,000	200,000+	180,000	225,000	300,000	800,000+	240,000	
		Frost capacity	105,000	85,000+	130,000	140,000	200,000+	155,000	190,000	240,000	690,000	(a)	
A5B A6B	SW parking apron extension SW parking apron	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	300,000	330,000+	380,000+	800,000+	390,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	245,000	300,000	370,000	800,000+	310,000	
A7B A8B	SW parking apron SW parking apron	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	300,000	330,000+	380,000+	800,000+	380,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	260,000	310,000	380,000	800,000+	320,000	
A9B A12B A18B A21B	SW parking apron SW parking apron NE parking apron NE parking apron	Capacity	105,000	85,000	140,000	150,000	200,000+	165,000	205,000	275,000	800,000+	(a)	
		Frost capacity	95,000	80,000	120,000+	130,000	185,000	140,000	175,000	220,000	650,000	(a)	
A10B A11B A19B A20B	SW parking apron SW parking apron NE parking apron NE parking apron	Capacity	110,000	85,000+	145,000	155,000	200,000+	175,000	215,000	290,000	800,000+	(a)	
		Frost capacity	100,000	85,000	120,000	130,000	190,000	145,000	175,000	225,000	650,000	(a)	
A13B A14B	Parking apron Parking apron east wing	Capacity	90,000	75,000	125,000	130,000	200,000	145,000	185,000	260,000	770,000	(a)	
		Frost capacity	80,000	65,000	105,000	110,000	165,000	125,000	155,000	200,000	600,000	(a)	

Table 4 (Continued)

SUMMARY OF PAVEMENT EVALUATION

NAME OF AIRFIELD: Lockbourne AFB, Ohio

DATE OF EVALUATION MONTH: Aug YR: 1972

LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS

FEATURE NO.	FEATURE DESIGNATION	PAVEMENT OPERATIONAL USE	TRICYCLE ARRANGEMENT: SINGLE 100-PSI TIRE PRESSURE (1)	SINGLE 100-SQ-IN. CONTACT AREA (2)	SINGLE 241-SQ-IN. CONTACT AREA (3)	TW 28-IN. C-C 226-SQ-IN. CONTACT AREA EACH TIRE (4)	SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA (5)	TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE (6)	TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE (7)	TWIN TANDEM 33 IN. × 48 IN. 208-SQ-IN. CONTACT AREA EACH TIRE (8)	C-5A GEAR CONFIGURATION (9)	BICYCLE: TWIN TWIN SPCG 37-62-37 267-SQ-IN. CONTACT AREA EACH TIRE (10)	REMARKS
A15B	Operational apron	Capacity	85,000	70,000	110,000	115,000	175,000	130,000	165,000	230,000	680,000	(a)	
		Frost capacity	75,000	60,000	95,000	100,000	150,000	115,000	140,000	180,000	530,000	(a)	
A16B	Parking apron west wing	Capacity	80,000	65,000	110,000	110,000	170,000	125,000	165,000	235,000	[illegible]	(a)	
		Frost capacity	70,000	60,000	95,000	100,000	150,000	110,000	140,000	185,000	550,000	(a)	
A23B	ADC apron	Capacity	155,000+	85,000+	155,000+	220,000+	200,000+	300,000	330,000+	380,000+	800,000+	390,000	
		Frost capacity	155,000+	85,000+	155,000+	220,000+	200,000+	255,000	310,000	380,000	800,000+	320,000	
A24B	ADC hangar apron and access taxiway	Capacity	150,000	85,000+	155,000+	205,000	200,000+	230,000	285,000	380,000	800,000+	300,000	
		Frost capacity	135,000	85,000+	155,000+	180,000	200,000+	195,000	235,000	295,000	800,000+	245,000	
A25B	Alert apron and taxiway	Capacity	75,000	60,000	105,000	110,000	170,000	125,000	160,000	225,000	660,000	(a)	
		Frost capacity	70,000	55,000	85,000	95,000	140,000	105,000	130,000	175,000	520,000	(a)	
A26B	Hangar aprons and access taxiways	Capacity	85,000	70,000	110,000	115,000	175,000	130,000	165,000	230,000	680,000	(a)	
		Frost capacity	75,000	60,000	95,000	100,000	150,000	115,000	140,000	180,000	530,000	(a)	
A27B	Nose dock access apron												
A28B	ANG apron	Capacity	75,000	60,000	100,000	105,000	160,000	120,000	150,000	210,000	620,000	(a)	
		Frost capacity	65,000	55,000	85,000	90,000	130,000	100,000	125,000	160,000	480,000	(a)	
A29C	Washrack	Capacity	110,000	85,000+	150,000	155,000	200,000+	175,000	220,000	300,000	800,000+	235,000	
		Frost capacity	100,000	85,000	125,000	135,000	200,000	150,000	185,000	240,000	710,000	(a)	

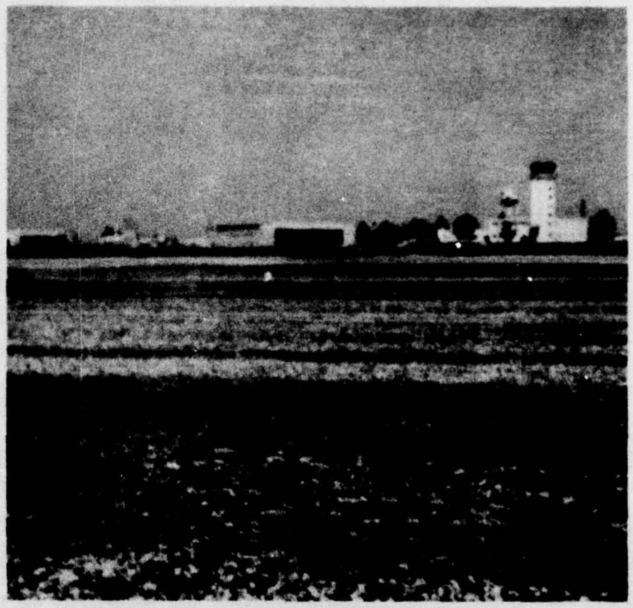


Photo 1. View of NE-SW runway 1 between taxiways C and D

Photo 2. Poor joint in NE-SW runway 1, north of taxiway E

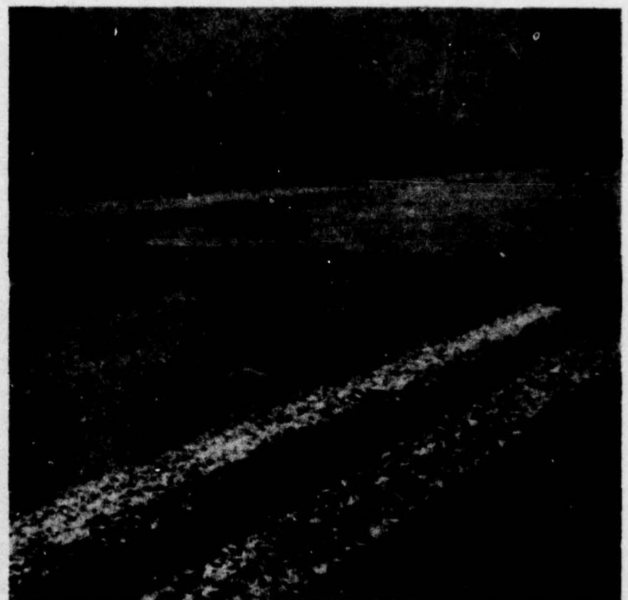


Photo 3. Longitudinal and transverse blowups on NE-SW runway 1, north of taxiway E

Photo 4. Tar rubber surface of SW parking apron

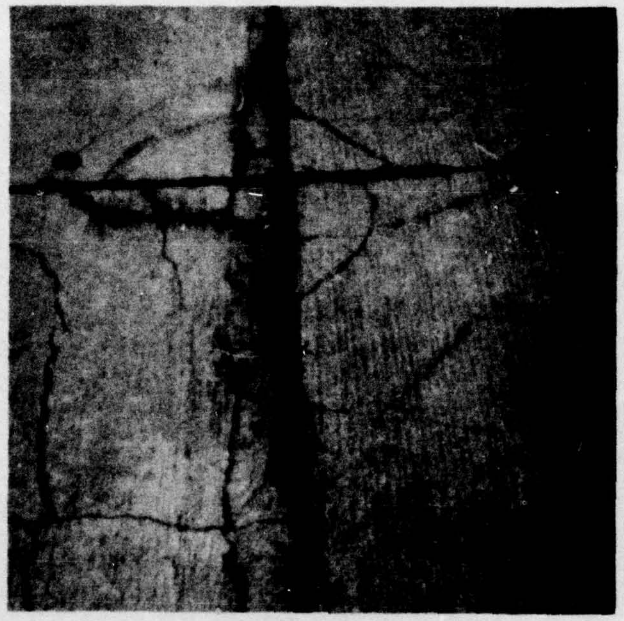


Photo 5. Cracks at corners of four slabs of ANG apron

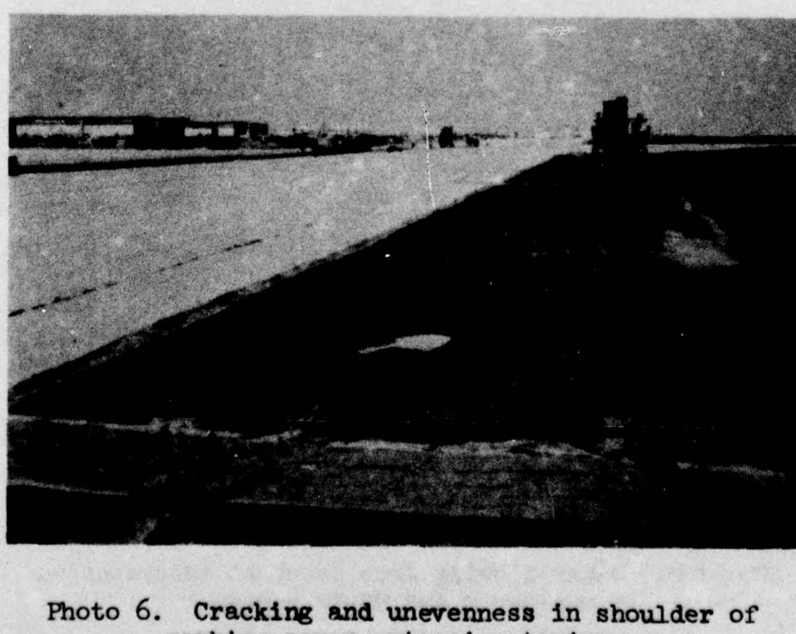


Photo 6. Cracking and unevenness in shoulder of parking apron extension taxiway

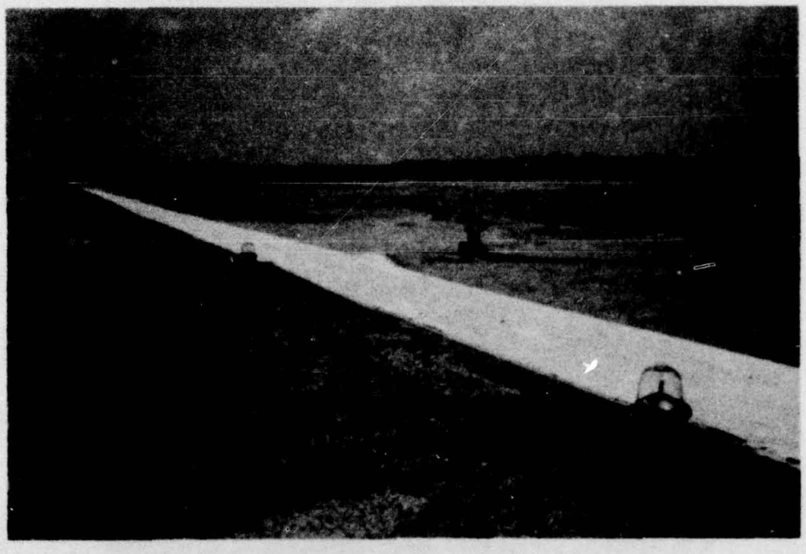
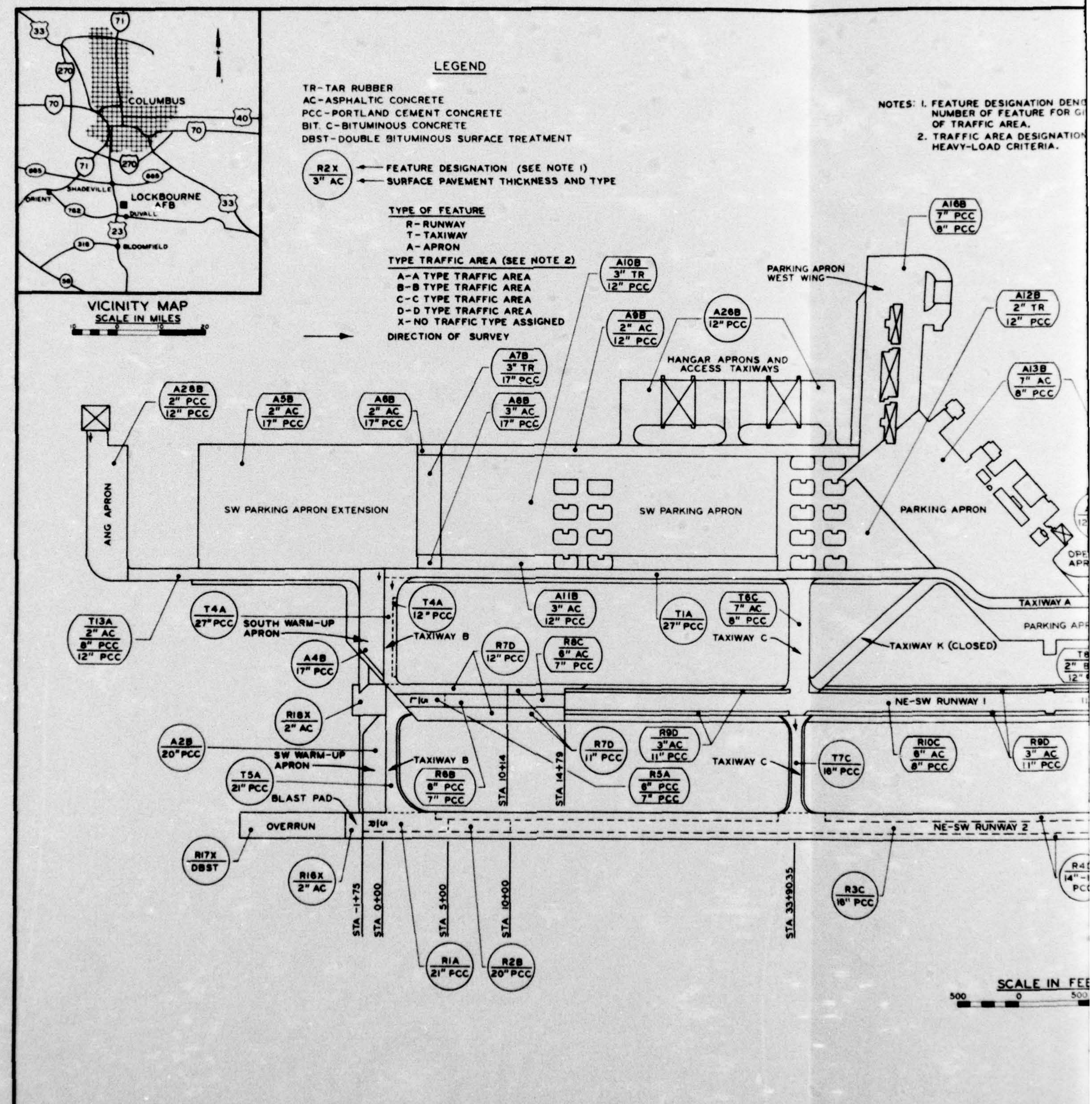
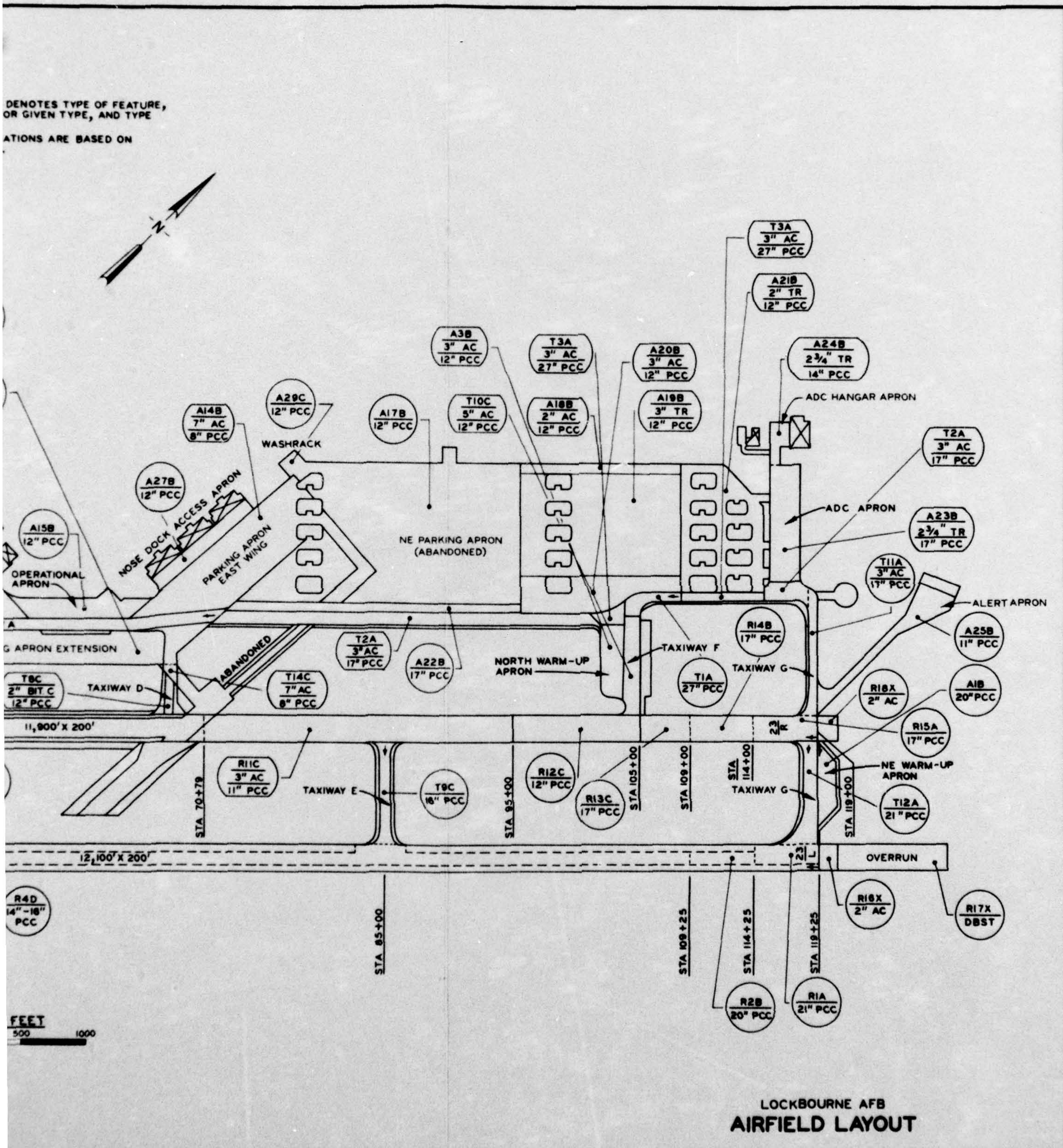


Photo 7. Blowup at intersection of taxiway C and NE-SW runway 1

Photo 8. Water flowing from joint at intersection of taxiway C and NE-SW runway 1



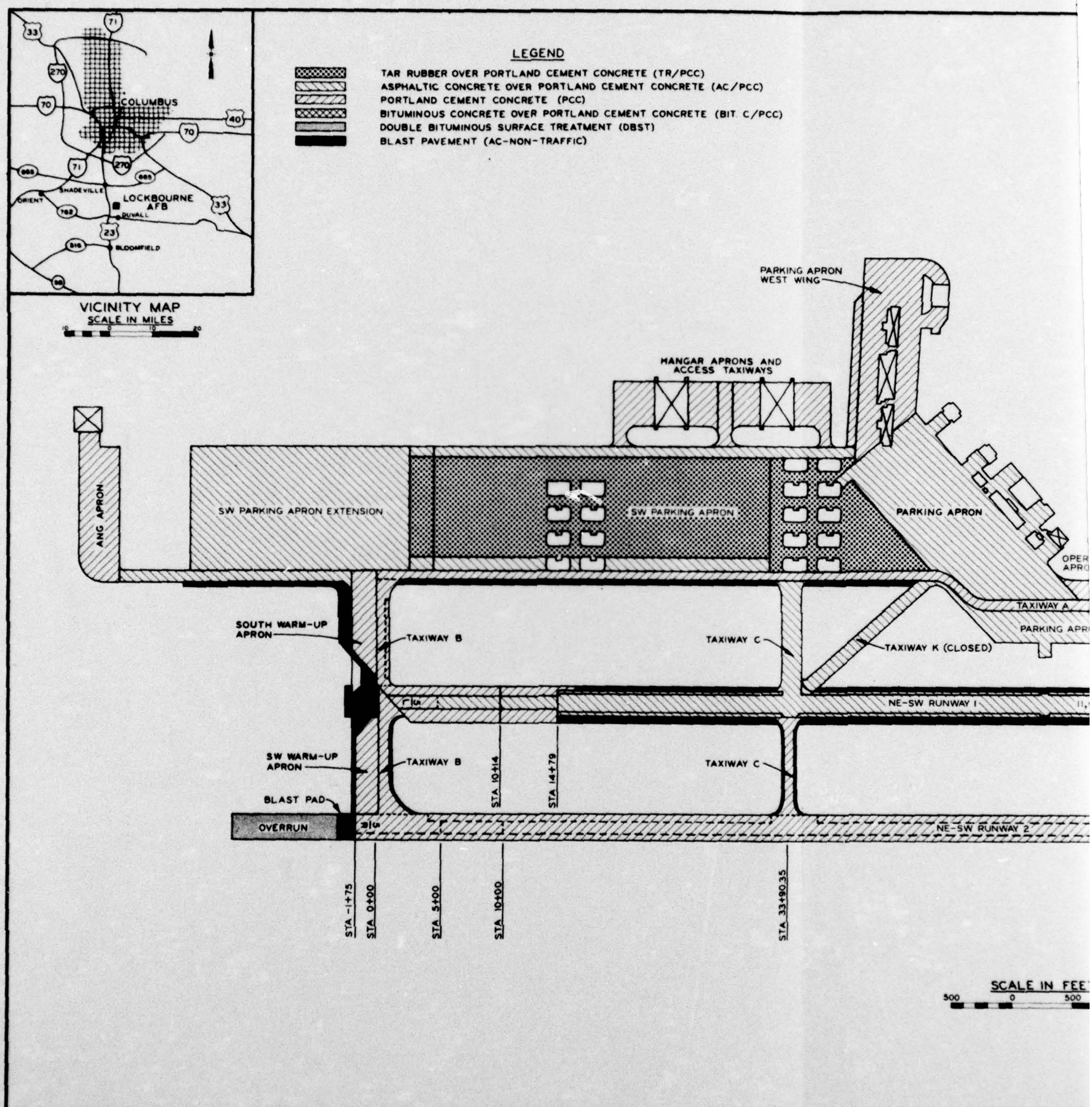
COLUMBUS
LOCKBOURNE AFB
SHADEVILLE
ORIENT
DUVALL
BLOOMFIELD
VICINITY MAP
SCALE IN MILES
LEGEND
TR-TAR RUBBER
AC-ASPHALTIC CONCRETE
PCC-PORTLAND CEMENT CONCRETE
BIT. C-BITUMINOUS CONCRETE
DBST-DOUBLE BITUMINOUS SURFACE TREATMENT
R2X / 3" AC
FEATURE DESIGNATION (SEE NOTE 1)
SURFACE PAVEMENT THICKNESS AND TYPE
TYPE OF FEATURE
R-RUNWAY
T-TAXIWAY
A-APRON
TYPE TRAFFIC AREA (SEE NOTE 2)
A-A TYPE TRAFFIC AREA
B-B TYPE TRAFFIC AREA
C-C TYPE TRAFFIC AREA
D-D TYPE TRAFFIC AREA
X-NO TRAFFIC TYPE ASSIGNED
DIRECTION OF SURVEY
NOTES: 1. FEATURE DESIGNATION DENO
NUMBER OF FEATURE FOR GI
OF TRAFFIC AREA.
2. TRAFFIC AREA DESIGNATION
HEAVY-LOAD CRITERIA.
A16B / 7" PCC / 8" PCC
PARKING APRON WEST WING
A10B / 3" TR / 12" PCC
A12B / 2" TR / 12" PCC
A9B / 2" AC / 12" PCC
A26B / 12" PCC
HANGAR APRONS AND ACCESS TAXIWAYS
A13B / 7" AC / 8" PCC
A7B / 3" TR / 17" PCC
A28B / 2" PCC / 12" PCC
A5B / 2" AC / 17" PCC
A6B / 2" AC / 17" PCC
A8B / 3" AC / 17" PCC
ANG APRON
SW PARKING APRON EXTENSION
SW PARKING APRON
PARKING APRON
T13A / 2" AC / 8" PCC / 12" PCC
T4A / 27" PCC
SOUTH WARM-UP APRON
T4A / 12" PCC
TAXIWAY B
A11B / 3" AC / 12" PCC
T1A / 27" PCC
T6C / 7" AC / 8" PCC
TAXIWAY C
TAXIWAY A
TAXIWAY K (CLOSED)
A4B / 17" PCC
R7D / 12" PCC
R8C / 6" AC / 7" PCC
R18X / 2" AC
NE-SW RUNWAY 1
A2B / 20" PCC
SW WARM-UP APRON
TAXIWAY B
R7D / 11" PCC
R9D / 3" AC / 11" PCC
TAXIWAY C
T7C / 16" PCC
R10C / 6" AC / 8" PCC
R9D / 3" AC / 11" PCC
T5A / 21" PCC
R6B / 6" PCC / 7" PCC
R5A / 6" PCC / 7" PCC
BLAST PAD
STA 10+14
STA 14+79
OVERRUN
NE-SW RUNWAY 2
R17X / DBST
R16X / 2" AC
STA -1+75
STA 0+00
STA 5+00
STA 10+00
STA 33+90.35
R3C / 16" PCC
R1A / 21" PCC
R2B / 20" PCC
SCALE IN FEE

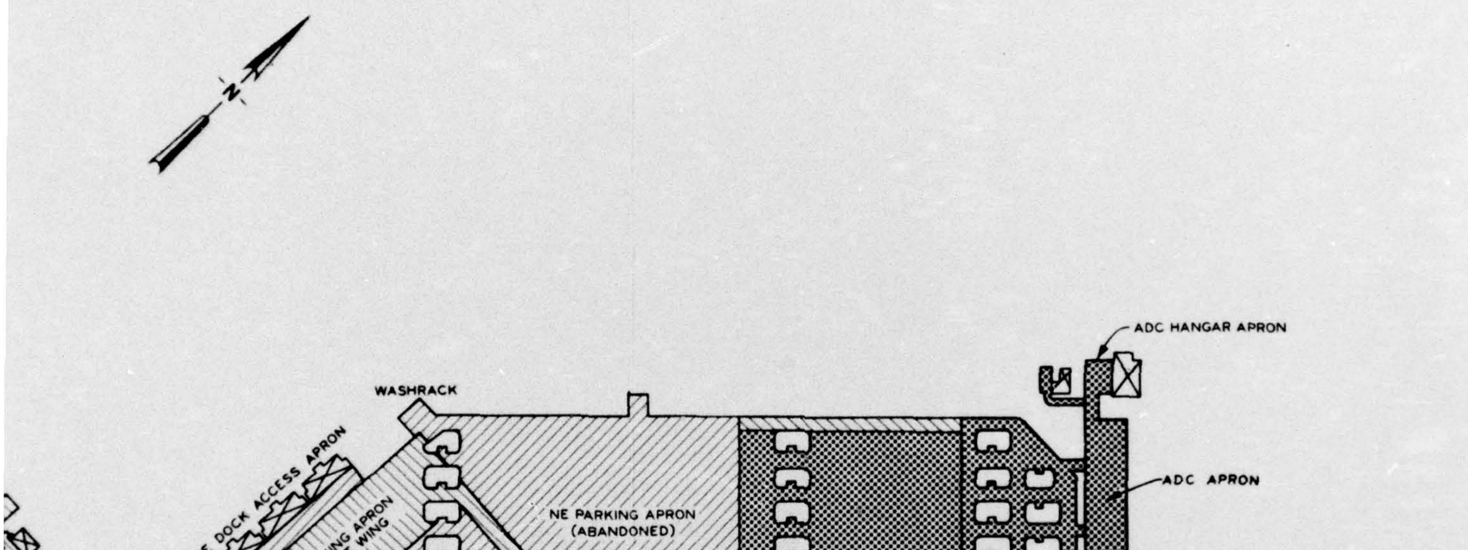


LOCKBOURNE AFB
AIRFIELD LAYOUT

PLATE 1

2


LEGEND
TAR RUBBER OVER PORTLAND CEMENT CONCRETE (TR/PCC)
ASPHALTIC CONCRETE OVER PORTLAND CEMENT CONCRETE (AC/PCC)
PORTLAND CEMENT CONCRETE (PCC)
BITUMINOUS CONCRETE OVER PORTLAND CEMENT CONCRETE (BIT. C/PCC)
DOUBLE BITUMINOUS SURFACE TREATMENT (DBST)
BLAST PAVEMENT (AC-NON-TRAFFIC)
COLUMBUS
SHADEVILLE
ORIENT
LOCKBOURNE AFB
DUVALL
BLOOMFIELD
VICINITY MAP
SCALE IN MILES
PARKING APRON WEST WING
HANGAR APRONS AND ACCESS TAXIWAYS
ANG APRON
SW PARKING APRON EXTENSION
SW PARKING APRON
PARKING APRON
TAXIWAY A
TAXIWAY B
TAXIWAY C
TAXIWAY K (CLOSED)
SOUTH WARM-UP APRON
SW WARM-UP APRON
BLAST PAD
OVERRUN
NE-SW RUNWAY 1
NE-SW RUNWAY 2
STA 10+14
STA 14+79
STA -1+75
STA 0+00
STA 5+00
STA 10+00
STA 33+90.35
SCALE IN FEET
500
0
500



LOCKBOURNE AFB

PAVEMENT PLAN

PLATE 2

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